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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,727	05/23/2001	Masahiro Masuzawa	Q64468	1232

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EXAMINER

PEREZ, GUILLERMO

ART UNIT PAPER NUMBER

2834

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,727

Applicant(s)

MASUZAWA ET AL.

Examiner

Guillermo Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 20 recite the limitation "the intermediate" in lines 14 and 16, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the central opening" in 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-15, 20-37, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuzawa et al. (JP 02000116088A) in view of Van Hout et al. (U. S. Pat. 5,030,864).

Masuzawa et al. substantially teaches the claimed invention except that it does not show that the permanent magnet is axially magnetized in such a manner as to have a plurality of magnetic poles of alternately different polarities in the circumferential

direction on each end face thereof. Masuzawa et al. do not disclose that the magnetic poles on one end face of the permanent magnet are magnetically short-circuited with the hub. Masuzawa et al. do not disclose that the magnetic poles on the other end face serve as rotor magnetic poles. Masuzawa et al. do not disclose that the stator have on an end thereof a plurality of stator magnetic poles that can face the rotor magnetic poles at the same pole intervals via an axial gap.

Masuzawa et al. do not disclose that the ratio of generator thickness/diagonal length of generator end face being not more than 6%. Masuzawa et al. do not disclose that the outer periphery of the hub protrudes not less than 0.3 mm from the outer periphery of the permanent magnet. Masuzawa et al. do not disclose that an end of each of the stator magnetic poles on the side facing the rotor magnetic poles protrudes not less than 0.3 mm radially inward to the central opening of the permanent magnet. Masuzawa et al. do not disclose that a distance between portions of the adjacent stator magnetic poles facing the rotor magnetic poles is 0.3 mm to 1.0 mm.

Masuzawa et al. do not disclose that the magnetic pole teeth each have a step difference in the axial direction between the portion facing the rotor magnetic pole and the portion having a coil wound thereon; the overall thickness being reduced by the step difference. Masuzawa et al. do not disclose that the magnetic pole teeth each have an inclined portion at the step difference; the inclined portion having a 30 to 60 degrees angle with respect to the longitudinal direction of the entire magnetic pole teeth. Masuzawa et al. do not disclose that the permanent magnet is a bonded magnet containing SmFeN magnetic powders or NdFeB magnetic powders, or a sintered

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NdFeB magnet. Masuzawa et al. do not disclose that the permanent magnet is a bonded NdFeB magnet containing NdFeB magnetic powders.

Van Hout et al. disclose that the permanent magnet (111) is axially magnetized in such a manner as to have a plurality of magnetic poles of alternately different polarities in the circumferential direction on each end face thereof (figure 4). Van Hout et al. disclose that the magnetic poles on one end face of the permanent magnet (111) are magnetically short-circuited with the hub (107). Van Hout et al. disclose that the magnetic poles on the other end face serve as rotor magnetic poles. Van Hout et al. disclose that the stator (125) have on an end thereof a plurality of stator magnetic poles that can face the rotor magnetic poles at the same pole intervals via an axial gap. Van Hout et al. disclose that the magnetic pole teeth each have a step difference in the axial direction between the portion facing the rotor magnetic pole and the portion having a coil wound thereon; the overall thickness being reduced by the step difference. Van Hout et al. disclose that the hub (107) is supported by an anti-friction bearing (102) so as to be rotatable around the rotational axis. The invention of Van Hout et al. has the purpose of eliminating the fundamental frequency of the detent torque without the necessity of skewing the pole separations in the permanent magnet body.

It would have been obvious at the time the invention was made to modify the generator of Masuzawa et al. and provide it with the machine configuration disclosed by Van Hout et al. for the purpose of eliminating the fundamental frequency of the detent torque without the necessity of skewing the pole separations in the permanent magnet body.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the machine embodiment with the specified dimensions since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the specified magnet materials since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the motor of Van Hout et al. work as a generator since the examiner takes Official Notice of the use of a dynamoelectric machine as a generator or a motor in the dynamoelectric art by reversing their operations would be within the level of ordinary skill in the art. Refer to "Electric Motors and Motor Controls" Jeff Keljik pages 139-142.

2. Claims 16-19 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuzawa et al. in view of Van Hout et al. as applied to claims 14 above, and further in view of Obara (U. S. Pat. 6,078,466).

Masuzawa et al. and Van Hout et al. substantially teaches the claimed invention except that it does not show that the portion of the hub which comes in contact with balls of the anti-friction bearing has a hardness of not less than HRC35. Neither

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Masuzawa et al. nor Van Hout et al. disclose that the portion of the hub which comes in contact with balls of the anti-friction bearing has a U-shaped groove.

Obara discloses that the portion of the hub (9) comes in contact with balls (13) of the anti-friction bearing. Obara discloses that the portion of the hub (9) which comes in contact with balls of the anti-friction bearing has a U-shaped groove (figure 3). Obara's invention has the purpose of facilitating the assembly works and reducing manufacturing costs.

It would have been obvious at the time the invention was made to modify the generator of Masuzawa et al. and Van Hout et al. and provide it with the hub and bearing configuration disclosed by Obara for the purpose of facilitating the assembly works and reducing manufacturing costs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the portion of the hub which comes in contact with balls of the anti-friction bearing with a hardness of not less than HRC35 since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Allowable Subject Matter


Claims 42-43 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.


NESTOR RAMIREZ
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Guillermo Perez
September 25, 2002